Transistors Panasonic

# 2SA2163

## Silicon PNP epitaxial planar type

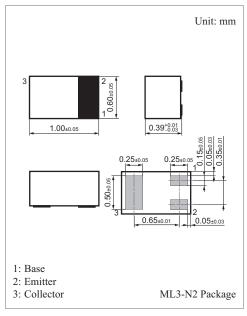
### For high frequency amplification

#### ■ Features

- High transition frequency f<sub>T</sub>
- Optimum for high-density mounting and downsizing of the equipment for Ultraminiature leadless package
   0.6 mm × 1.0 mm (height 0.39 mm)

## ■ Absolute Maximum Ratings $T_a = 25$ °C

Parameter	Symbol	Rating	Unit	
Collector-base voltage (Emitter open)	$V_{CBO}$	-30	V	
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	-20	V	
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	-5	V	
Collector current	$I_{C}$	-30	mA	
Collector power dissipation	P <sub>C</sub>	100	mW	
Junction temperature	T <sub>j</sub>	125	°C	
Storage temperature	T <sub>stg</sub>	-55 to +125	°C	



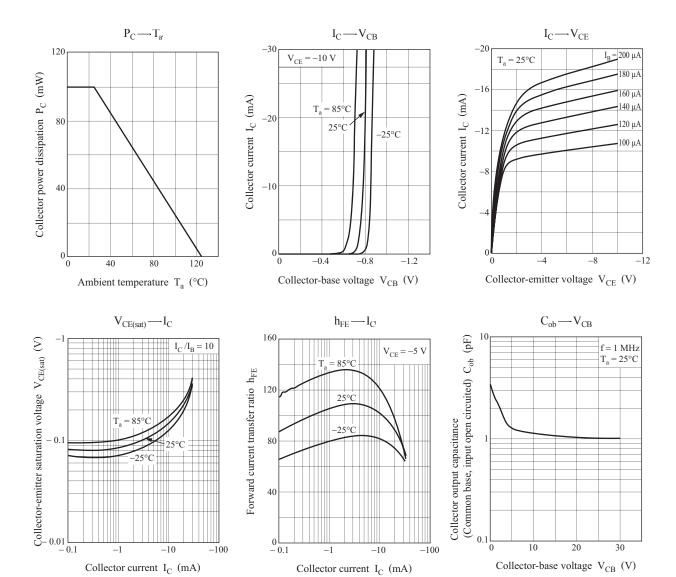
Marking Symbol: 6J

### ■ Electrical Characteristics $T_a = 25$ °C±3°C

Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Base-emitter voltage	$V_{BE}$	$V_{CE} = -10 \text{ V}, I_{C} = -1 \text{ mA}$		-0.7		V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -10 \text{ V}, I_{E'} = 0$			-0.1	μА
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -20 \text{ V}, I_{B} = 0$			-100	μΑ
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = -5 \text{ V}, I_C = 0$			-10	μΑ
Forward current transfer ratio	$h_{FE}$	$V_{CE} = -10 \text{ V}, I_{C} = -1 \text{ mA}$	70		220	_
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_C = -10 \text{ mA}, I_B = -1 \text{ mA}$		-0.1		V
Transition frequency	$f_T$	$V_{CB} = -10 \text{ V}, I_{E} = 1 \text{ mA}, f = 200 \text{ MHz}$	150	300		MHz
Noise figure	NF	$V_{CB} = -10 \text{ V}, I_{E} = 1 \text{ mA}, f = 5 \text{ MHz}$		2.8	4.0	dB
Reverse transfer impedance	$Z_{rb}$	$V_{CB} = -10 \text{ V}, I_{E} = 1 \text{ mA}, f = 2 \text{ MHz}$		22	50	Ω
Reverse transfer capacitance (Common emitter)	$C_{re}$	$V_{CB} = -10 \text{ V}, I_{E} = 1 \text{ mA}, f = 10.7 \text{ MHz}$		1.2	2.0	pF

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

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